

INTRODUCTION

Staffs of the Columbia Basin Agricultural Research Center (CBARC-Oregon State University, Pendleton and Sherman Stations) and the Columbia Plateau Conservation Research Center (United States Department of Agriculture - Agricultural Research Service, Pendleton) are proud to present results of their research. This Special Report contains a representative sample of the work in progress at these Centers. A collection of bulletins over a three-year period will give a more complete assessment of the productivity and applicability of research conducted on behalf of producers. Changes in staffing, programming, and facilities at these Centers during the past year are summarized below.

PROMOTIONS AND AWARDS

Dan Ball was elected vice-president of the Oregon Society of Weed Science. Richard Smiley was named Fellow of the American Phytopathological Society, elected Councilor for the APS Pacific Division, and appointed APS representative to the Council for Agricultural Science and Technology (CAST).

Within the USDA staff, Dale Wilkins was promoted to GS-14 on June 12, 1994 and Paul Rasmussen was promoted to GS-14 on April 2, 1995. Outstanding Service Awards were given to Betty Klepper, Dale Wilkins, and Phil Dailey. The American Society of Agronomy awarded a Certificate of Excellence for Development of Agronomic Educational Material to Russ Karow, Betty Klepper, Ron Rickman, and Tami Toll (Johlke) for a

publication depicting use of wheat seedling morphology in evaluating seedling vigor.

STAFF CHANGES

For the OSU staff, Vicky Correa and Teresa Walenta were employed throughout the year in the wheat breeding program. Cheryl Van Pelt and Julie Bain served during extended periods in the weed science research program. Mike Moore, Senior Faculty Research Assistant, transferred from Corvallis to Pendleton, where he coordinates wheat breeding activities and programs led by Pamela Zwer and Warren Kronstad. Karen Morrow also joined the OSU staff as a Biological Research Technician in the wheat breeding program.

For the USDA staff, John Zuzel retired from his hydrology position after 38 years of government service. Carol Brehaut, research leader secretary, retired after 23 years of service and was replaced by Jacque Grandbois, who transferred to Pendleton when the ARS Laboratory in Fairbanks, AK, was closed. The postdoctoral hydrologist, Deghyo Bae, resigned to return to Korea, his native country. Erin Bailey worked for an 8-week period last summer on a special ARS program for research apprentices in agriculture. Brian Whitten from Pendleton Junior High School worked on a Teacher Research Fellowship in a special ARS program designed to provide more understanding of agricultural research to the students who will become tomorrow's scientists. A summer intern position in soil microbiology was filled by Kimberly Ladd, a junior at Oregon State University with a major in Rangeland Resources. Rebecca Holowecky was hired as a temporary full time technician to operate the Plant Laboratory. Lance Rinker worked for an extended period in the soil quality program.

Seven temporary student employees were hired for the summer field season.

NEW PROJECTS

For the OSU staff, Dan Ball was the recipient of a USDA Special Grant on the development, prediction, and prevention of seed production in jointed goatgrass. Another of Ball's new projects was a grant from ITT Corporation to examine night time tillage to reduce weed seed germination. Don Wysocki was the recipient of a USDA special grant for improving canola seedling establishment under dryland conditions. Wysocki also developed a project for evaluating yield of yellow mustard lines, in cooperation with Jack Brown at the University of Idaho. Richard Smiley received a USDA-Western Region IPM Grant to evaluate the integration of fertilizer practices and fungicide seed treatments for improving wheat production efficiency and reducing nutrient contamination of ground water. Other OSU and USDA-ARS collaborators also participate in these new projects. The new projects complement ongoing research funded by the Oregon Wheat Commission, USDA-STEPP II Research Program, agri-business, and other funding agencies.

On the USDA-ARS staff, work by the Teacher Fellow, Brian Whitten, showed that weed seeds are distributed near the soil surface with chisel plowing, but buried with moldboard plowing. This fact led to the development by Dale Wilkins of a new mow-plow system for weed control in a high residue environment. This system involves use of a stripper header at harvest, over-winter tall stubble cover, and a mower/straw management system that is operated in conjunction with a moldboard plow. The mowed residues are distributed behind the

plow to provide residue cover. A new post-doctoral position has been assigned to assist in development of this system.

Ron Rickman has initiated a new project to define problems of measuring accurately the residue or canopy cover in a field when the cover is not randomly placed, but occurs in regularly-spaced rows or strips; the work is important for the Natural Resources Conservation Service (NRCS) residue cover measurements in the compliance program. Clyde Douglas and Steve Albrecht have begun a new project to evaluate microbial activity during residue decomposition, evaluate temporal effects on activity, and identify rates of decomposition in relation to residue fraction and type. These two scientists are also collaborating with Dale Wilkins and Ron Rickman to quantify the amount of carbon that is lost during and following different tillage operations.

FACILITIES

The OSU program did not initiate construction projects during the past year. A Kubota tractor was purchased and equipped with an experimental herbicide application system fabricated by our staff. A swather was purchased for use in experiments with canola, grass seed, and legumes. A soil pasteurization system was constructed for the purpose of manipulating populations of soil microorganisms and weed seeds in greenhouse soils. A seed drill was fabricated for experiments requiring deep-furrow planting in small plots. The D2 crawler used in much of the OSU research was replaced by a newer Kamatsu tractor. The Yanmar tractor at the Sherman Station was replaced by a Kioti tractor. A direct communication cable was installed at

Pendleton to improve reliability of on-line accounting and electronic communications.

The USDA office building upgrades included a fire/emergency alarm system for the microbiology laboratory and storage building, roof repair and maintenance, new siding for the equipment shed and solar drying room, and installation of above-ground tanks for heating fuel. Also a satellite dish and receiver was installed to allow on-site training and intra-agency communication via satellite. Major new equipment purchased for the new microbiology program included a high performance liquid chromatograph, a gas chromatograph, a liquid scintillation counter, and a superspeed refrigerated centrifuge.

TRAINING

OSU staff continued to maintain requirements for pesticide application licenses, first aid, and cardiopulmonary resuscitation. Gloria Eidam traveled to Corvallis for training with FIS, the new on-line electronic financial information system, which will become fully implemented during the summer of 1995. Judy Elliott and Gloria Eidam enrolled in a class at Blue Mountain Community College, where they received additional training with word-processing programs. Karl Rhinhart acquired training required to serve as the local trainer for OSU's new Respiratory Protection Program, which involves most OSU staff at the Center.

The following USDA staff attended: Sharron Wart, an advanced field acquisition seminar; Chris Roager and Phil Dailey, laboratory safety and health training; Daryl Haasch, safety training; Steve Albrecht, "Introduction to High Performance Liquid

Chromatography" and "Liquid Chromatography Methods Development and Trouble Shooting"; and Craig Cameron, "Introduction to ARC/INFO". Many employees took advantage of one-day courses, including the following: six employees, a one-day course in Microsoft Windows; Betty Klepper and Clyde Douglas, "Pre-retirement Counseling"; Paul Rasmussen and Steve Albrecht, "How to Make Presentations with Confidence and Power"; Paul Rasmussen, "Management Problems of the Technical Person in a Leadership Role"; Larry Baarstad, a chemical applicator's short course; Tami Johlke and Roger Goller, a workshop on "Pesticides and Soil and Water Quality"; and Dale Wilkins, "How to Handle Negativity in the Workplace". Tami Johlke became licensed as a Public Pesticide Applicator for agricultural herbicides. The entire ARS staff received one day of training in "Total Quality Management." Most of the staff attended CPR and/or first aid classes with instructors from Blue Mountain Community College.

VISITORS

Distinguished visitors hosted by staff at the Center included Dick Amerman, Doral Kemper, and Jan Van Schilfgaarde from USDA-ARS, National Program Staff, Beltsville, MD; Bob Reginato, Area Director; Phyllis Johnson, Associate Area Director; Ralph Nave, Assistant Area Director; Chet Reeder, Area Administrative Officer; Martha Steinbock, Technology Transfer Coordinator; and Alvin Humphrey and Brad Baugh, Area Health and Safety Officers, ARS Pacific West Area; Tom Gohlke and Ken Pfeiffer, Natural Resource Conservation Service (NRCS), Western National Technical Center; Keith Saxton, Don McCool and Robert Papendick, (ARS,

Pullman, WA); John Byrne, President of OSU; Thayne Dutson, Mike Burke, Kelvin Koong, Van Volk, Bob Witters, and Bruce Sorte, OSU College of Agricultural Sciences; and Ian Tinsley, Sheldon Ladd, and Stella Coakley, Chairs of OSU Departments of Agricultural Chemistry, Crop and Soil Sciences, and Botany and Plant Pathology. Scientists visiting to do joint research with the staff included Ray Allmaras (ARS, St. Paul, MN), Baird Miller (Washington State University), and J. M. Sabatier and Jim Chambers (National Center for Physical Acoustics). Foreign visitors included Tarig Javed from Japan, four Egyptian plant scientists and six scientist-administrators from parts of the former Soviet Union. Also a team of five scientists from other universities visited the station and evaluated staff and facilities, during a Tri-State Wheat Research Review funded by the Wheat Commissions of Idaho, Oregon, and Washington.

SEMINARS

The seminar series at the Center was coordinated by Ron Rickman. Seminars included the following speakers and subjects: Sue Waldman (MODWht3 Validation for Spring Wheat), Don Wysocki (Use of On-Farm Tests to Improve Fertility Management, Fostering the Adoption of STEEP Cropping Systems Technology), Clyde Douglas (Decomposition of Canola Residues), Steve Albrecht (Methanol Effects on Cereal Crop Growth and Yield; Future Direction of the Soil Microbiology Program), Ron Rickman (Soil Water Content Response to Overwinter Tillage for 20 Years of a Wheat-pea Rotation; Predicting the Development of Crown Root Axes of Annual Grasses), Betty Klepper (Root Models: Concepts and Realities), and Paul Rasmussen (Nitrogen Placement and

Stubble Burning Effects on Downy Brome Competition in Winter Wheat).

LIAISON COMMITTEES

The Pendleton and Sherman Station Liaison Committees have region-wide representation and provide guidance in decisions on staffing, programming and facilities and equipment improvement at the Stations. Membership is by appointment by the Director of the Oregon Agricultural Experiment Station and also, at Pendleton, by the Director of the Pacific West Area, USDA-ARS. These committees provide a primary communication linkage among growers, industry, the research staff and their parent institutions. The Committee Chairs and OSU and USDA administrators encourage and welcome your concerns and suggestions for improvements needed in any aspect of the research centers or their staffs.

Rotations occurred in the leadership of both committees. John Rea and Steve Anderson are commended for their many years of service and leadership. The Pendleton and Sherman Station liaison committees held a joint meeting on March 2, 1994. The Pendleton Station liaison committee, now led by Chairman Gary Burt (Walla Walla: 509-529-6787), also met on October 18, 1994, and May 3, 1995. The Sherman Station liaison committee, now led by chairman Ernie Moore (Moro: 503-565-3202), met on May 24 and September 6, 1994.

EXPRESSIONS OF APPRECIATION

The staff wishes to express their appreciation to individuals, associations and corporations who have given special assistance for the operation of experimental plots on or associated with the Center during

1994-95. The Oregon Wheat Commission continued to provide the critical support upon which the Center's OSU projects are founded. Thanks are also given to those who donated equipment (David Conlee), funds, seed, soil, and/or chemicals (AGSCO, American Cyanamid, Steve Anderson, Blue Mountain Seed, Blue Mountain Green Pea Growers, CIBA Crop Protection, Connell Grain Growers, E.I. duPont, FMC, Kerley Ag., Lewiston Grain Growers, McGregor Co., Bayer (Miles), Monsanto, Bart Owsley, Pendleton Grain Growers, Premier Edible Oils, Rhone Poulenc, Russell Karow, Sandoz Agro, SeedTec International, United Nations Food and Agriculture Organization, Wilbur-Ellis Co.) or loaned equipment or facilities (John Rea, John Correa, Frank Tubbs, James Moore, Sherman Reese, Bob and Don Zimmerman), USDA-ARS Pullman (Keith Saxton, Don McCool), OSU Dept. of Crop and Soil Sciences, and OSU Hermiston Agricultural Research and Extension Center (George Clough), or provided services (the City of Moro, Robert Powell). Services in field plot tillage and seeding were also provided by Don Meiners, Clint Reeder, Jeff Shaw, Ted Gilliland, Jerry Simpson, Doug Harper, Jay Nowograski, Eric Anderson, Berk Davis, and Leon and Sherman Reese. Collaborators from the NRCS include Harry Riehle (WA), Floyd Bailey (ID), Tom Gohlke (OR), Ken Pfeiffer (Western National Technical Center), Kate Danks (Pendleton), and Bob Adelman (Pendleton).

We also acknowledge those who donated labor, supplies, equipment or funding for the Pendleton Field Day: American Cyanamid, CIBA Crop Protection, Dow-Elanco, E.I. duPont, Farm Credit Services, Farm Equipment Headquarters, First Interstate Bank, FMC Corporation, Huntington-Price, Inland Chemical Service,

Inland Empire Bank, Intermountain Canola, McGregor, Main Street Cowboys, Monsanto, Pendleton Bus Company, Pendleton Flour Mills, Pendleton Grain Growers, Pioneer Implement Corp., Rhone-Poulenc, Rohm and Haas, Sandoz Agro, Les Schwab Tire Center, Smith Frozen Foods, Steele's Bar and Grill, Tri-River Chemical, Umatilla County Wheat Growers League, Valent U.S.A., Walla Walla Farmer's Coop, Western Farm Service, Wheatland Insurance, Wilbur-Ellis, and Zeneca.

We also thank donors who provided buses, meals, and other services for the Moro Field Day: Branding Iron Restaurant, Cargill, Cascade Ranchers, Gustafson, Klickitat Valley Grain Growers, Mid-Columbia Bus, Mid-Columbia Producers, Monsanto, Morrow County Grain Growers (Lexington and Wasco), Northwest Chemical, Richelderfer Air Service, SeedTec International, Sherman Aviation, Sherman County School District, Sherman Farm Chemicals, Western Tillage Equipment, and Wilbur-Ellis.

Cooperative research plots at the Center were operated by Warren Kronstad, Patrick Hayes, Chris Mundt, Russ Karow, Jack Brown, and the Natural Resource Conservation Service. Additionally, we are very thankful for the ever-present assistance from the Extension Service personnel in all counties of the region, and especially from Umatilla (Mike Stoltz, Phil Hamm, and Tom Darnell), Union/Baker/Wallowa (Gordon Cook), Sherman/Wasco (Sandy MacNab and Brian Tuck), Morrow/Gilliam (Phil Nesse), and Malheur (Ben Simko) counties in Oregon, and from Columbia (Roland Schirman), Adams/Lincoln (Bill Schillinger), Walla Walla (Walt Gary), Klickitat (John Fouts), Benton (Greg van

Doren), Asotin (Gary Delany), and Whitman (John Burn) counties in Washington.

We also wish to thank over 200 farmers who have allowed us to work on their property during the past year, and who have often gone the extra mile by performing field operations, loaning equipment, donating chemicals, and adjusting their practices to accommodate our plots. The locations of the principal outlying sites are shown on the map that follows.

We truly appreciate the support and encouragement of growers, organizations, and businesses with a mission common to ours: to serve in the best manner possible the crop production and resource conservation needs of our region. We welcome your suggestions on how we may continue to improve our attempts to reach this goal.

Richard Smiley
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